

Cain; and for physical constants, Drs. Wilsmore and Cain and Prof. Findlay. Dr. Cain's services have been secured for all three committees in view of his editorship of the publications of the Chemical Society. The other chemical societies have also appointed influential committees to deal with these same subjects, and the reports of these committees were considered at the Berlin congress last month. At this gathering thirteen societies having a total membership of 18,000 were represented. The next meeting of the Association is to be held in London in September, 1913, under the presidency of Sir Wm. Ramsay, when, in addition to the subjects already being dealt with, the question of the possibility of arriving at an international understanding with respect to editing and to the publication of abstracts will be considered.

In view of the overlap and duplication of publication now being carried on by several societies all doing the same kind of work, it will be seen that great need exists in the interests of chemical literature for making a serious effort towards centralisation. This can only be done by international co-operation, and it is to be hoped that some practical scheme may be developed as one result of the useful and valuable labours which the new Association has entered upon.

MR. JOHN GRAY.

WE announced with regret last week the death of Mr. John Gray, one of the examiners of the Patent Office, and well known for enthusiastic and painstaking efforts on behalf of anthropology. Mr. Gray was born at Strichen, Aberdeenshire, on January 9, 1854. He was educated at the Aberdeen Grammar School and at Edinburgh University, where he took the second prize in Prof. Fleeming Jenkin's class in 1873. He obtained the first Royal Exhibition at the Royal School of Mines, London, in 1875, and later received the associateship in metallurgy. He took his degree in Edinburgh in 1878, and entered the Patent Office in that year.

Mr. Gray made a study of many electrical problems, especially those bearing on electrical influence machines. He published a book on this subject, in which he traced the historical development of influence machines, and described such modern forms as those of Kelvin, Voss, Holtz, and Wimshurst. He was well known for his connection with physical anthropology, and took an active part in all recent efforts to secure its recognition by the State. He was elected treasurer of the Royal Anthropological Institute in 1904, and his efforts to improve the financial condition of that body were crowned with complete success. In 1904 he gave evidence before the Interdepartmental Committee on physical deterioration, and, in conjunction with the late Prof. Cunningham, submitted a scheme for a national anthropometric survey.

At the request of the Royal Anthropological Institute, Mr. Gray organised a deputation to meet the late Sir Henry Campbell-Bannerman, the

object of which was to impress on the Government the necessity of carrying out the recommendation of the Physical Deterioration Committee with regard to a national survey. He designed a number of novel anthropometric instruments, some of which are extensively used by anthropologists, and for which he received a diploma of honour at the Franco-British Exhibition.

Mr. Gray took a deep interest in his native county, and, in conjunction with Mr. J. F. Tocher, conducted a series of anthropometric measurements on the population of Aberdeenshire from 1895 to 1899, the results of which were published in the *Journal of the Royal Anthropological Institute*, and in the *Transactions of the Buchan Club*, of which he was president in 1899. In 1901-1902, along with Mr. Tocher, he advocated a survey of the colour characters of school children of Scotland, and joined the Scottish committee on its formation, the other members being Sir William Turner, K.C.B., F.R.S., Prof. R. W. Reid, and Mr. Tocher. Both he and Mr. Tocher published memoirs bearing on the results of the survey from different viewpoints. Mr. Gray's memoir appeared in the *Journal of the Royal Anthropological Institute* (Vol. 37, 1907). In this memoir Mr. Gray gave his views on the distribution of colour in Scotland, and displayed local groupings by a system of contour lines in a series of maps.

Mr. Gray's many contributions to anthropological literature include the following:—*"Measurements on Papuan Skulls"* (*J.R.A.I.*, 1901), *"Indian Coronation Contingent"* (*B.A. Report*, 1902), *"England before the English"* (*B.A. Report*, 1906), *"A New Instrument for Determining the Colour of the Hair, Eyes and Skin"* (*Man*, 1908), and *"Who Built the British Stone Circles?"* (*NATURE*, December 24, 1908). Mr. Gray is survived by a widow and one daughter.

NOTES.

THE French Ambassador took the chair on May 3 at the first of the series of four lectures being delivered by M. Henri Poincaré on mathematical subjects at the University of London: the two remaining lectures will be given on May 10 and 11. M. Poincaré, who was born in 1854, was educated at the lycée at Nancy, entered the École Polytechnique, being placed first on the list, and on leaving it became a Government mining engineer (*ingénieur des mines*), this employment being reserved for those who occupy very high places at the *examen de sortie* of the school. He exercised this profession only for a short time; in 1881 he was appointed to a lectureship in pure mathematics at the Sorbonne, and when M. Lippmann exchanged the chair of mathematical physics for a chair of experimental physics, M. Poincaré succeeded him. Later, on the death of M. Tisserand, M. Poincaré succeeded to the chair of mathematical astronomy. He has made contributions of the greatest importance to pure and applied mathematics, astronomy, and mathematical physics, and also to scientific

method, with which he has dealt in his books, "Science et Hypothèse" and "La Valeur de la Science." There is no mathematician living of greater eminence, and probably none whose writings cover so wide a field. It is the historic custom of the French Academy to number amongst its members one or two of the members of the Academy of Sciences whose reputation is best known to the world at large, and after the death of M. Berthelot (though not, we believe, as his successor) M. Poincaré was appointed to that body. M. Poincaré is a cousin of M. Raymond Poincaré, the French Premier.

THE Bill for the Protection of Ancient Monuments, introduced by Earl Beauchamp, has now passed its second reading in the House of Lords. The provision by which the right of pre-emption of valuable sites in the event of sale is reserved to the State was opposed by Lord Curzon in an impressive speech, in which he urged that the example of the destruction of historical buildings like Temple Bar and Tattershall Castle justified the extension of the powers at present possessed by the Government in such matters. But he pointed out the improbability of the Treasury granting funds for the purchase of such monuments, and he urged that the Society for the Protection of Ancient Buildings, which had been in existence for nearly forty years, should have a representative on the Advisory Board, and that a subordinate board should be formed in Scotland to report to London. Further additions to the staff of inspectors were also advisable. He made the startling suggestion that, as matters stand at present, the vicar and churchwardens of Stratford-on-Avon might remove the bust of Shakespeare from the church under their control. The Archbishop of Canterbury remarked that a faculty was necessary in the event of such a proposal, but he seemed to be inclined to admit that more rigid supervision over restorations and the disposal of church plate and stained glass should be provided through the diocesan courts.

IN a recent letter to *The Times*, apropos of a case in the Law Courts, Dr. G. F. Herbert Smith commented on the difficulty with which jewellers are confronted owing to the success that has been achieved in the manufacture of rubies. In the case in question the stones were styled reconstructed, but they were no doubt synthetical stones formed by the fusion of alumina powder by the method described by Prof. A. Verneuil in 1904. The former term is properly restricted to the cloudy, inferior stones resulting from the fusion of fragments of natural rubies. In both processes the colouring agent is chromic oxide. According to one witness, an expert jeweller could immediately detect a reconstructed ruby, because it had a different colour and lustre. While possibly true of the reconstructed, it is certainly not true of the synthetical stones. Owing to the essential identity of the molecular constitution the latter have the same lustre as natural rubies, and, although the artificial stones are usually made of one particular shade of red, yet the same tint is common in natural stones. Discrimination is, however, easy, because the synthetical rubies invariably contain faint curved mark-

ings and a few tiny, spherical bubbles. A simple and trustworthy test of this kind is very important on account of the great disparity between the prices of the two kinds of rubies. Men of science may consider the synthetical stones of greater interest; the general public views them otherwise.

APRIL, with its total rainfall of 0.02 in. at Greenwich, is not only the driest April on record, but it is drier than any month at any period of the year during the last 100 years. The absolute drought at Greenwich, which has now been brought to a close, continued for twenty-three days, from April 10 to May 2, which is the same length of time as the longest drought in the memorable summer last year, when no rain fell from July 1 to 23. The London area has only experienced about five droughts of a longer period during the last fifty years. The aggregate rainfall at Greenwich from March 24 to May 3, a period of forty-one days, was only 0.10 in., and the total fall from March 24 to May 6, a period of forty-four days, yields 0.29 in. The partial drought, not exceeding 0.01 in. per day, may be prolonged into May, but it cannot claim to be thrown further back into March. Some further results yielded by the observations published in the Daily Weather Report of the Meteorological Office show Oxford to have experienced an absolute drought for twenty-three days, and a partial drought from March 24 to May 3, with 0.18 in. of rain, whilst the total to May 2, a period of forty-one days, only measured 0.07 in. At Nottingham the absolute drought continued for twenty-two days, from April 11 to May 2; at Jersey twenty-two days, from April 12 to May 3; at Bath, twenty-one days, from April 13 to May 3, and the aggregate fall at Bath from March 24 to May 6, a period of forty-four days, is 0.57 in. The copious rains during the early part of March and throughout the past winter naturally rendered the recent drought far less serious than many previous spring droughts of somewhat recent years. An entirely different type of weather seems now to have set in, and the conditions have become favourable to a series of disturbances arriving over us from the Atlantic, so that fairly copious rains may be anticipated.

ONE of the chief objections to the Daylight Saving Bill is the dislocation the scheme would effect in the zone system of time reckoning established by international conferences held successively in Rome and Washington thirty years ago. Mr. W. Ellis, F.R.S., refers particularly to this point in a short article in the March number of *The Horological Journal*. At present the prime meridian of Greenwich regulates the time of the civilised world. If the clocks of Great Britain are put forward one hour in summer, as proposed by the Bill, they will not show Greenwich time, but mid-European time; that is to say, our prime meridian, accepted by nations as regulating the time of the world, will be discarded by us for five months in every year, in total disregard of existing well-considered and well-established international relations. An Act to enforce the alteration of clocks by putting them forward for one hour in summer would introduce confusion in a scientific system and disturb accepted international standards. We cannot believe that such a proposal will ever be seriously entertained by Par-

liament. A more promising subject to which attention may usefully be directed is the reckoning of hours from one to twenty-four in order to avoid the designations of a.m. and p.m. The Nord and Est Railway Companies of France have just introduced this twenty-four hour system for their clocks and timetables, and the Orient express is now timed to leave the Paris Gare de l'Est at 19h. 13m. instead of 7.13 p.m. as heretofore, while on the station clocks the figures from 13 to 24 have been inscribed on the face within the outer circle of the existing hour figures. It would be a decided advantage if the 24-hour method of describing time were adopted in Great Britain.

At the meeting of the Institution of Electrical Engineers on May 16, a marble bust of the late Lord Kelvin will be presented to the institution on behalf of Lady Kelvin.

THE governing body of the Imperial College of Science and Technology has appointed Mr. W. Frecheville to be professor of mining in the Royal School of Mines, in succession to Prof. S. Herbert Cox, who is about to retire.

MR. WALTER E. ARCHER, C.B., who, as assistant secretary, has been in charge of the Fisheries Division of the Board of Agriculture and Fisheries since its establishment in October, 1903, has been compelled to retire from the public service owing to ill-health. His retirement took effect on May 1.

WE are informed by Dr. Shaw, director of the Meteorological Office, that the superintendent of the observatory at Eskdalemuir, Dumfriesshire, reports that the seismographs at the observatory recorded a violent earthquake on May 6, at 7 p.m. The position of the epicentre is 63° N. latitude, 21° W. longitude, which indicates a place in the Atlantic not far from Iceland, to the south-west of the island.

MR. H. C. K. PLUMMER has been elected by the Board of Trinity College, Dublin, to be Royal Astronomer in Ireland, in succession to Dr. E. T. Whittaker, who was recently elected professor of mathematics at Edinburgh University. Mr. Plummer is the son of Mr. W. E. Plummer, director of the Liverpool Observatory, and has been second assistant to Prof. H. H. Turner at the Oxford University Observatory since 1901.

ON Tuesday next, May 14, Prof. W. Bateson will begin a course of two lectures at the Royal Institution on "The Study of Genetics," and on Thursday, May 16, Prof. H. T. Barnes will deliver the first of two lectures on "The Physical and Economic Aspects of Ice Formation in Canada." The Friday evening discourse on May 17 will be delivered by Mr. W. Duddell on "High-frequency Currents," and on May 24 by Mr. A. D. Hall on "Recent Advances in Agricultural Science—the Fertility of the Soil."

THE services of the official guide to the collections at the British Museum, Bloomsbury, have been so highly appreciated that a similar officer has been appointed, experimentally, at the Natural History Museum, South Kensington. Mr. J. H. Leonard has been selected for the position, and he will probably

take up his duties before Whitsuntide. The guide will make two tours of the museum daily, each tour lasting an hour. Provision will also be made for special tours, and for these, special application will have to be made.

At the annual general meeting of the Institution of Civil Engineers held on April 30, the following were elected president and vice-presidents:—*President*, Mr. Robert Elliott-Cooper; *vice-presidents*, Mr. A. G. Lyster, Mr. B. H. Blyth, Mr. J. Strain, and Mr. G. Robert Jebb. The council of the institution has made the following awards for papers read during the session 1911-1912:—Telford gold medals to Messrs. E. and W. Mansergh; a George Stephenson gold medal to Mr. R. T. Smith; a Watt gold medal to Mr. A. H. Roberts; Telford premiums to Messrs. J. Goodman, A. B. McDonald, G. M. Taylor, D. C. Leitch, W. C. Easton, and D. H. Morton; and the Manby premium to Mr. S. H. Ellis.

In the report of the council of the Chemical Society presented at the annual general meeting on March 28, and published in the last number of the Proceedings, it is stated that in the opinion of counsel any person using the letters "F.C.S." without authority and for the purpose of wrongfully assuming the status of a fellow of the Chemical Society, can be restrained by injunction from so doing. Mention is made that the Becquerel memorial lecture is to be delivered by Sir Oliver Lodge in the place of Prof. Rutherford. In connection with the publication of the Journal it is stated that the cost is about 5200*l.* a year, which represents about five-sevenths of the society's income. The congratulations of the council have been offered to Mr. E. Riley, who has completed sixty years of fellowship, and to Major C. E. Beadnell, R.A., Mr. H. O. Huskisson, and Mr. F. Norrington, who, during 1911, attained their jubilee as fellows.

FURTHER particulars have been received of the arrangements in connection with the International Congress of Applied Chemistry, to be held in Washington and New York next September, to which reference has been made on previous occasions. It is stated that 573 papers have now been definitely promised to the respective sections. Five general lectures have been arranged: Mr. George T. Beilby, F.R.S., of Glasgow, on "Some Physical Aspects of Molecular Aggregation in Solids"; Prof. Gabriel Bertrand, of Paris; "Des rôles des infiniment petites chimiques en chimie biologique"; Prof. Carl Duisberg, of Eberfeld, "The Latest Achievements and Problems of the Chemical Industry"; Prof. Giacomo Ciamician, of Bologna, "La foto chimica dell'avvenire"; and Prof. Ira Remsen, of Baltimore, "Priestley in America."

MR. W. J. L. ABBOTT contributes to the July-December issue of the Journal of the Royal Anthropological Institute a useful article on the classification of the prehistoric British stone industries. He points out the danger of assuming that the evolution of culture has progressed along a line of unbroken chronological sequence, and he shows that the evidence derived from our river deposits must be accepted with the qualifica-

tion that in different areas there have been tectonic movements and phenomena attending differential elevation, depression, and denudation, which have contributed to destroy a consecutive altitudinal chronology. Palæolithic man being a nomad, he constructed his implements according to hereditary custom, while discoveries of improved methods were not easily disseminated over the wide areas occupied by these wandering groups. In the course of the discussion he suggests a new series of terms to designate various forms of implement. It is obvious that innovations such as these, unless accepted by a congress of anthropologists, are likely to lead to further confusion, and his proposal to assign the name "Prestwich" to one and "Evans" to another type, after two distinguished geologists and antiquaries, though based on the analogy of terms like "ohm," "watt," or "farad," is scarcely likely to meet with general acceptance.

To *The Field* of April 17 Mr. Lydekker contributes extracts from a letter from the British Resident in Nepal in regard to the so-called unicorn rams of that country, of which examples were exhibited some years ago in the London Zoological Gardens. Mr. Lydekker had previously suggested in the same journal that the fusion of the horns is due to artificial manipulation of those of young lambs of the barwal breed; and this is fully confirmed by the inquiries instituted by the Prime Minister at the request of the Resident. The budding horns of young lambs are seared with hot irons, and treated with soot and oil, after which, instead of spreading outwards, they coalesce and grow backwards.

IN connection with the treaty between Great Britain, the United States, Russia, and Japan for the suppression of pelagic sealing, Dr. F. A. Lucas contributes to the *American Museum Journal* for April an article on the Alaskan fur-seal. "The fur-seal," he observes, "would long ago have been swept out of existence but for the fact that the breeding-grounds are carefully guarded, and while the herd is but a tithe of its former size, it still comprises many thousands. If pelagic sealing can be brought to an end, the seal-herd will recuperate rapidly, even though the death-rate is high, and not more than half the seals born in any one season live to return the next. Whether or not this desirable end can be brought about remains to be seen, and some of us are not very hopeful."

THE twenty-second annual report of the Missouri Botanical Garden contains two long papers on the genus *Agave*, by Dr. Trelease, who also contributes a shorter paper on two new *Yuccas*. The *Agave* memoirs are illustrated by no fewer than eighty fine photographic plates, numerous new species being described, chiefly from Lower California. A further instalment of Griffiths's studies on the genus *Opuntia* is also included; this is illustrated by seventeen beautiful plates, representing ten new species.

FROM two articles on *Podophyllum emodi*, in *The Indian Forester* (April, 1912) and the *Forest Bulletin* (No. 9), by Puran Singh, it would appear that the Indian species has strong claims on many grounds for inclusion in the new edition of the British Phar-

macopœia, which is now being revised by a committee of the Pharmaceutical Society. It has been definitely established that the Indian species yields a considerably higher percentage of resin, containing the active cathartic and purgative principle podophyllotoxin, than the American species (*P. peltatum*) which has hitherto been universally employed as the source of the drug podophyllin.

No. 48 of the Scientific Memoirs of the Government of India, by Major D. McCay, details investigations into the jail dietaries of the United Provinces. It contains a mass of statistical and analytical data on the subject which will be of the greatest value. The nutritive values of the diets at present in use, and the coefficients of protein and carbohydrate absorption of the different materials entering into those dietaries, have been determined, and from the data obtained eight new dietaries of practically identical nutritive values have been framed. Certain side-issues have also been investigated. The percentage of nitrogen in the fæces is practically constant, whatever the type of diet may be, and when inferior vegetable food-stuffs are made use of the loss of protein by the fæces is very great. A final conclusion is of considerable importance: from the facts collected with regard to the inhabitants of the United Provinces and martial races of the plains, it would appear that, other things being equal, diet is the all-important factor in determining the degree of physical development and general well-being of a people, and that with a low level of nitrogenous interchange deficient stamina, morally and physically, must be expected.

The meteorological chart of the North Atlantic for May, issued by the Meteorological Office on April 18, includes synoptic weather charts for April 8-17. During this period a large anticyclone moved north-eastward from the southern part of that ocean. The weather was fair over western Europe, but to the westward of longitude 30° W. conditions were changeable and showery. The latest ice reports from Canada referred to the existence of heavy, close ice and numerous bergs in Belleisle Strait; off Cape Race (Newfoundland) no ice was visible. Mention is made of the fact that the bergs which appear annually in the North Atlantic have their origin, as a rule, in western Greenland; only a few come from Spitsbergen, and still fewer from Hudson's Bay. The mean limits of field-ice and of icebergs in May are laid down on the chart, the extreme boundaries being about 42° N., 45° W., and 39° N., 40° W. respectively.

A LECTURE on daylight delivered by Prof. E. L. Nichols before the Franklin Institute is reproduced in the April number of the *Journal of the Institute*. In addition to a summary of the facts about daylight, which are comparatively well known or can be found in a standard work like Pernter and Exner's "Meteorologische Physik," it contains an account of the measurements made by the author at home and in Switzerland by means of a spectrophotometer. These cover such subjects as the relative brightness of clear and partially or wholly clouded sky, the distribution of light of different wave-lengths in daylight at

dawn and later, the effect of mist or an approaching storm on the distribution, and, lastly, the means taken in artificial illumination to imitate daylight.

IN the February number of the Bulletin of the Academy of Sciences of Cracow, Prof. Natanson has an article on the energy content of material bodies in which he points out an important distinction between Prof. Planck's theory of radiation and Prof. Einstein's idea that every material body consists of an assemblage of Planckian vibrators, the energy of which constitutes the heat energy of the body. While in the general theory of radiation it is unnecessary to inquire how many vibrators of a given period are present per gram of a material, so long as the interchange of energy of different wave-lengths can be effected by their means, in the latter theory it is of fundamental importance to determine the number of each kind present. Without this knowledge Prof. Einstein's interesting theory cannot be pursued further.

IN the course of a valuable paper on "Some Aspects of Diesel Engine Design," read by Mr. D. M. Shannon at the Institution of Engineers and Shipbuilders in Scotland, the author takes up the important question of the proper design of cams for operating the valves. The noise caused by some cam and roller gears is due principally to two causes, the first and greater being the speed with which the cam strikes the roller, and the second being the valve striking the seat. The latter need cause no inconvenience, since it occurs inside the cylinder, and is therefore of a muffled nature. To get rid of the former cause, the flat part of the cam profile should slide under the roller at a tangent, and should grip the roller with no velocity. If this is done, the valve can then be pushed open as rapidly as desired. The closing of the valve should be obtained in a similar manner. Diagrams are given showing the abrupt changes in speed and acceleration produced by a badly designed cam, and are contrasted with the curves given by a cam properly designed. There are many makers of internal-combustion engines who might profit by a careful study of Mr. Shannon's paper.

MESSRS. J. AND A. CHURCHILL have just ready for publication vol. vi. of the new edition of "Allen's Commercial Organic Analysis." This volume has been rewritten under the editorship of Mr. W. A. Davis and Mr. S. S. Sadtler.

AMONG the new books and new editions announced for publication by Messrs. C. Griffin and Co., Ltd., are the following:—"Practical Agricultural Bacteriology," Prof. Lohnis, translated by W. Stevenson; "Notes on Foundry Practice," J. J. Morgan; "Modern Road Construction," F. Wood; "Modern Pumping and Hydraulic Machinery," E. Butler; "Calculations on the Entropy Chart," Dr. W. J. Crawford; "The Evolution of the Internal Combustion Engine," E. Butler; "The Gas Turbine, Theory, Construction, and Working Results of Two Machines in Actual Use," H. Holzwarth, translated by A. P. Chalkley; "A Manual of Marine Engineering: comprising the Designing, Construction, and Working of Marine Machinery," A. E. Seaton; "A Treatise on Mine Surveying," H. Brough, revised by Prof. S. W. Price;

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"Electrical Photometry," Prof. H. Bohle; "Celluloid," a translation from the French of Masselon, Roberts, and Cillard, by Dr. H. H. Hodgson; "A Handbook on Metallic Alloys," G. H. Gulliver; "Mathematics and Mechanics for Technical Examinations," C. A. A. Capito.

OUR ASTRONOMICAL COLUMN.

A BRILLIANT METEOR.—A meteor of unusual brilliance and low velocity was observed by Mr. Rolston at South Kensington at 9h. 46m. (G.M.T.) on May 2. The approximate commencement and end of the flight were at $150^{\circ}+14^{\circ}$, and $142\frac{1}{2}^{\circ}$, 0° , respectively, and the time occupied in traversing the path was estimated as at least two seconds. Both in colour and brightness the meteor was very like Arcturus, and no train was visible along which it had passed. The position of the commencement of the apparition is a little uncertain, because Mr. Rolston was not actually engaged in watching for meteors, his attention being first directed to the phenomenon by its extraordinary brightness.

NOVA GEMINORUM, No. 2.—In No. 4569 of the *Astronomische Nachrichten*, Prof. Max Wolf publishes some remarks on the apparently periodical changes in the structure of the complicated hydrogen bands in the spectrum of Nova Geminorum. As Prof. Iníguez has pointed out, the most intense portion of each band has changed its position in the band, and Prof. Wolf finds that a certain periodicity is displayed by the variations. The brightest part moves gradually, first towards the red and then towards the violet, the changes taking place in regular steps in about fourteen, or seven, days. Thus on March 15 and 29 the dark absorption line in the H δ band, at $\lambda 4093$, became obvious, and on April 13 the structure of the band was similar to that which obtained on March 17. It is suggested that the seven-day magnitude variation remarked by Dr. Kritzinger may be related to these changes in the structure of the spectral bands.

FAINT STARS WITH LARGE PROPER MOTIONS.—The comparison of photographs of several star clusters taken in 1909-10 with the large Pulkowa astrograph with similar plates taken eleven to fifteen years earlier has disclosed a number of large proper motions, of which Herr Kostinsky gives particulars in No. 4569 of the *Astronomische Nachrichten*. The magnitude of the proper motions was measured in the first place with a Zeiss stereocomparator, and was shown in every case to be more than $10''$ per century on a great circle. The annual motions of the seven stars described range from $0.113''$ to $1.111''$ on a great circle. Four pairs of plates, having intervals of about one year, show that the star BD+ 53° 2911 (mag. 9.5) has a mean annual proper motion of $1.23'' \pm 0.04''$; this star appears on the photographs of the Nova Lacertæ (1910) region, its position (1911.0) being 22h. 29m. 10.2s., + 53° 20' 3".

SOLAR PROMINENCES IN 1910.—Prof. Riccò publishes his annual (1910) summary of the prominences observed at Catania in No. 3, vol. i., series 2, of the *Memorie della Società degli Spettroscopisti Italiani*. It shows that while from month to month the mean frequency of prominences varied irregularly, there was, on the whole, a regular decrease in the northern hemisphere, while the frequency was fairly constant in the southern. For the four trimestres the frequencies were:—N. hemisphere, 2.3, 1.5, 1.1, and 0.4; S. hemisphere, 1.4, 1.3, 1.3, and 1.3, respectively, the mean frequencies for the year being 1.3 in each hemisphere. This gives 2.6 as the mean frequency for both hemispheres, a value notably smaller than that for the immediately preceding